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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/980,111	IWATA ET AL.
	Examiner	Art Unit
	Dillon J. Murphy	2624

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 November 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
     closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-66</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-66</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>30 November 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All   b)☐ Some * c)☐ None of:

     1.☐ Certified copies of the priority documents have been received.

     2.☐ Certified copies of the priority documents have been received in Application No. _____.

     3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date <u>1/31/02, 6/13/05</u>.
4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The abstract of the disclosure is objected to because it is more than one paragraph. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: on page 28, line 19, "he" should be --the--. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 22-24, 55, and 66 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The computer programs claimed are merely a set of instructions per se and are not clearly embodied on a computer-readable medium to be executed by a computer. Since the computer program is merely a set of instructions not embodied on a computer readable medium to realize the

computer program functionality, the claimed subject matter is not statutory. See MPEP

§ 2106 IV.B.1.

A possible amendment may be "a computer-recordable medium comprising

computer-executable instructions, causing a computer to execute the steps of...".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 10, 11, 13, 15, 22, and 23 are rejected under 35 U.S.C. 102(b) as

being anticipated by Lobiondo (US 5,287,194).

Regarding claim 1, Lobiondo teaches a distributed printing control apparatus

comprising:

A data allocation module that divides print data, which is an object to be printed,

by page and specifies information representing pages allocated to multiple printers

(Lobiondo, col 4, In 16-19, Printshop Scheduler #50 of figure 1 schedules and

distributes a print job among a group of printers); and

A data output control module that outputs the print data in a distributive manner to the multiple printers according to the information specified by said data allocation module, said distributed printing control apparatus being capable of printing multiple copies of the print data according to a requirement (Lobiondo, col 4, ln 54-63, jobs are allocated to a distributed manner to a plurality of available printers according to a requirement of completion time),

Wherein said data allocation module arranges pages included in each copy in a sequence of the pages, divides all the pages of the multiple copies into the number of the multiple printers specified as destinations of distribution, and allocates respective divisions to the multiple printers (Lobiondo, col 4, ln 54-68 and col 5, ln 1-14, wherein multiple copies (col 4, ln 35-36) are divided and allocated into multiple printers, with allocations performed with respect to printers as one example), and

Said data output control module carries out the distributive output of the print data to the multiple printers in a substantially parallel manner, said data output control module converting the print data of each page, sequentially from a head page of each division, to a format suitable for each printer specified as the destination of distribution and then performing each distributive output (Lobiondo, col 6, ln 50-67 and col 7, ln 1-9, wherein the distributive output is performed in a parallel manner to provide for completion of a job at a specific time. Formatting is provided by the scheduler for each specific printer by dividing the job based on the capabilities of the printer, and outputting the job to the respective printers).

Regarding claim 3, Lobiondo further teaches a distributed printing control apparatus comprising:

A data allocation module that divides print data, which is an object to be printed, by page and specifies information representing pages allocated to multiple printers (Lobiondo, col 4, In 16-19, Printshop Scheduler #50 of figure 1 schedules and distributes a print job among a group of printers);

A data output control module that outputs the print data in a distributive manner to the multiple printers according to the information specified by said data allocation module (Lobiondo, col 4, In 54-63, jobs are allocated to a distributed manner to a plurality of available printers according to a requirement of completion time); and

A printer speed performance detection module that detects a performance on a printing speed of each of the multiple printers, wherein said data allocation module specifies the pages allocated to the multiple printers according to the performance on the printing speed of each printer detected by said printer speed performance detection module (Lobiondo, col 4, In 54-68 and col 5, In 1-14, wherein multiple copies (col 4, In 35-36) are divided and allocated into multiple printers, with allocations performed with respect to the speed of printers, speed detection is performed by the scheduler which analyzes printers on the network for performance information, col 4, In 46-50).

Regarding claim 10, claim 10 recites identical features as claim 1 except claim 10 is a method claim. Thus, arguments similar to that presented above for claim 1 are equally applicable to claim 10.

Regarding claim 11, claim 11 recites identical features as claim 3 except claim 11 is a method claim. Thus, arguments similar to that presented above for claim 3 are equally applicable to claim 11.

Claim 13 recites identical features as claim 1 except claim 13 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 13. Applicant's attention is further invited to col 3, ln 37-50, wherein Lobiondo discloses the Printshop Scheduler may be embodied in hardware or software, and data is stored in a computer readable medium such as a buffer or RAM.

Claim 15 recites identical features as claim 3 except claim 15 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 3 is equally applicable to claim 15. Applicant's attention is further invited to col 3, ln 37-50, wherein Lobiondo discloses the Printshop Scheduler may be embodied in hardware or software, and data is stored in a computer readable medium such as a buffer or RAM.

Claim 22 recites identical features as claim 1 except claim 22 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 22. Applicant's attention is further invited to col 3, ln 37-50, wherein Lobiondo discloses the Printshop Scheduler may be embodied in hardware or software, and data is stored in a computer readable medium such as a buffer or RAM.

Claim 23 recites identical features as claim 3 except claim 23 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 3 is equally applicable to claim 23. Applicant's attention is further invited to col 3, ln 37-50,

wherein Lobiondo discloses the Printshop Scheduler may be embodied in hardware or software, and data is stored in a computer readable medium such as a buffer or RAM.

Claims 5, 8, 12, 17, 20, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimada (US 6,654,136).

Regarding claim 5, Shimada teaches a distributed printing control apparatus comprising:

A data allocation module that divides print data, which is an object to be printed, by page and specifies information representing pages allocated to multiple printers (Shimada, col 6, ln 50-54, multi-printer controller divides print data on a page unit basis, i.e. allocates pages, to multiple printers #100 of figure 5); and

A data output control module that outputs the print data in a distributive manner to the multiple printers according to the information specified by said data allocation module (Shimada, col 6, ln 50-54, multi-printer controller also outputs data in a distributive manner to multiple printers according to allocation information), wherein said data allocation module specifies number of pages to be allocated to each of the multiple printers, such that each specified set of pages are printed with an identical printer (Shimada, figure 5, identical printers are shown by element #100, wherein pages are specified by data allocation module in ln 54-65, for example).

Regarding claim 8, which depends from claim 5, Shimada teaches a distributed printing control apparatus wherein said data allocation module comprises: a unit setting module that changes over the specified set of pages between a unit of each copy and a

unit of each set of identical pages, in response to an externally input predetermined third command (Shimada, selecting "print copy by copy" #772 of fig 12 changes the specified set of pages between a unit copy of each copy and a unit of each set of identical pages, seen in col 9, ln 12-60. When "print copy by copy" is not selected, each printer prints one page of a document to be printed. When "print copy by copy" is selected, each printer prints a complete set of the document to be printed) .

Regarding claim 12, claim 12 recites identical features as claim 5 except claim 12 is a method claim. Thus, arguments similar to that presented above for claim 5 are equally applicable to claim 12.

Claim 17 recites identical features as claim 5 except claim 17 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 5 is equally applicable to claim 17. Applicant's attention is further invited to col 4, ln 55-65, of Shimada, wherein CPU controls operation of printing system with RAM, ROM, and corresponding programs.

Regarding claim 20, which depends on claim 17, claim 20 recites identical features as claim 8 except claim 20 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 8 is equally applicable to claim 20.

Claim 24 recites identical features as claim 5 except claim 24 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 5 is equally applicable to claim 24. Applicant's attention is further invited to col 4, ln 55-65, of Shimada, wherein CPU controls operation of printing system with RAM, ROM, and corresponding programs.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lobiondo (US 5,287,194) and Yacoub (US 6,552,813).

Regarding claim 2, which depends from claim 1, Lobiondo teaches a distributed

printing control apparatus comprising a data allocation module and a data output control

module for the distributed printing of multiple copies of pages into a plurality of printers.

Lobiondo does not expressly disclose a distributed control apparatus further comprising

a virtual printer driver storage module that stores a virtual printer driver for specifying

information on a virtual printer corresponding to the multiple printers, and an

intermediate print data generation module that executes the virtual printer driver and

thereby obtains intermediate print data, which is adequate for the virtual printer, from an

application program that generates source data of the print data. Yacoub, however,

discloses a distributed printing control apparatus comprising a virtual printer driver

storage module (Yacoub, col 5, ln 35-44, Virtual Printer is implemented in a computer,

which implicitly has a storage module) that stores a virtual printer driver for specifying

information on a virtual printer corresponding to the multiple printers (Yacoub, col 5, ln

55-58, the virtual printers reads a database of printer information corresponding to a

plurality of printers), and an intermediate print data generation module that executes the

virtual printer driver and thereby obtains intermediate print data, which is adequate for

the virtual printer, from an application program that generates source data of the print

data (Yacoub, col 3, In 59-64, when a job is sent to the virtual printer (col 8, In 36-40,

application software on client computers), the virtual printers generates intermediate

print data such as choosing the appropriate printer for the job). Once the intermediate

print data has been generated by the distributed printing control apparatus of Yacoub,

the intermediate print data thus obtained is specified as the print data used in said data

allocation module and said data output control module (Lobiondo, col 4, In 54-68 and

col 5, In 1-14, print data is used in allocation module and output module to allocate and

distribute print jobs to a plurality of printers).

Lobiondo and Yacoub are combinable because they are from a similar field of

endeavor of distributed printing to a plurality of printers. At the time of the invention, it

would have been obvious to a person of ordinary skill in the art to combine the virtual

printer driver storage module and intermediate print data generation module of Yacoub

with the distributed printing control apparatus of Lobiondo comprising a data allocation

module, a data output control module for the distributed printing of multiple copies of

pages into a plurality of printers, wherein the intermediate print data is specified as print

data in the data allocation module and data output module. The motivation for doing so

would have been to relieve the user of the burdens of trying to find or select the most

appropriate printer for the job (Yacoub, col 5, In 1-2), as well as to provide a printshop

scheduler routine which can schedule and distribute a large job among a plurality of

local and remote printers attached to a network based on the availability and capability

of the printers and the criteria associated with the print job (Lobiondo, col 2, ln 20-31).

Therefore, it would have been obvious to combine Yacoub with Lobiondo to obtain the

invention as specified in claim 2.

Regarding claim 14, which depends on claim 13, claim 14 recites identical

features as claim 2 except claim 14 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 2 is equally applicable to claim 14.

Applicant's attention is further invited to col 3, ln 37-50, wherein Lobiondo discloses the

Printshop Scheduler may be embodied in hardware or software, and data is stored in a

computer readable medium such as a buffer or RAM. See also Yacoub, col 5, ln 35-44,

wherein distributed printer controller is implemented as a virtual printer application on a

computer or server.

Claims 4, 6, 7, 9, 16, 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Lobiondo (US 5,287,194) and Shimada (US 6,654,136).

Regarding claim 4, which depends from claim 3, Lobiondo teaches a distributed

printing control apparatus comprising a data allocation module, a data output control

module, and a printer speed performance detection module, wherein the data is

allocated to various printers based upon their speed performance. Lobiondo does not

teach a distributed printing control apparatus further comprising a distribution

information setting module that causes an input window to be displayed on a display

device and sets various pieces of information regarding distribution of the print data

based on input data from an input device, wherein said data allocation module specifies

the pages allocated to the multiple printers, based on the various pieces of information

set by said distribution information setting module, and said distribution information

setting module comprises a display control module that generates an illustrated image,

which includes an arrangement of printing media and corresponds to the information

specified by said data allocation module, based on the various pieces of information and

causes the illustrated image to be displayed on said display device. Shimada, however,

discloses a distributed printing control apparatus comprising a distribution information

setting module that causes an input window to be displayed on a display device and

sets various pieces of information regarding distribution of the print data based on input

data from an input device (Shimada, figure 12, input window is displayed to the user to

allow for setting pieces of information regarding distribution of print data such as "prefer

print speed" #774, "prefer print" order #773, number of copies #771, and "print copy by

copy" #772), wherein said data allocation module specifies the pages allocated to the

multiple printers, based on the various pieces of information set by said distribution

information setting module (Shimada, figure 12, selection of multi-printer checkbox #78

in fig 12 allows for distributed printing based upon pieces of information set by

information setting module. Also see col 6, ln 48-54 wherein pages are allocated), and

said distribution information setting module comprises a display control module that

generates an illustrated image, which includes an arrangement of printing media and

corresponds to the information specified by said data allocation module, based on the

various pieces of information and causes the illustrated image to be displayed on said

display device (Shimada, figure 12, illustrations of allocation of print media is shown

next to checkbox #772 corresponding to "print by copy," corresponding to information

specified by allocation module and distribution information setting module).

Lobiondo and Shimada are combinable because they are in a similar field of

endeavor of distributed printing to a plurality of printers. At the time of the invention, it

would have been obvious to a person of ordinary skill in the art to combine the

distributed printing control apparatus of Shimada comprising a distribution information

setting module, and a data allocation module to set and allocate information to a

plurality of printers with the aforementioned distributed printing control apparatus of

Lobiondo comprising a data allocation module, a data output control module, and a

printer speed performance detection module, wherein the data is allocated to various

printers based upon their speed performance. The suggestion for doing so would have

been to provide a scheduler which included a menu-driven operation viewable through a

suitable display means such as a display on a user-interface (Lobiondo, col 6, ln 19-21),

as well as to enable a plurality of printers to print a document without disordering a page

order (Shimada, col 1, ln 48-52). Therefore, it would have been obvious to combine

Shimada with Lobiondo to obtain the invention as specified in claim 4.

Regarding claim 6, which depends from claim 5, the combination of Lobiondo

and Shimada teaches a distributed printing control apparatus further comprising:

A printer speed performance detection module that detects a performance on a

printing speed of each of the multiple printers (Lobiondo, col 4, ln 54-68 and col 5, ln 1-

14, wherein multiple copies (col 4, ln 35-36) are divided and allocated into multiple

printers, with allocations performed with respect to the speed of printers. Speed

detection is performed by the scheduler which analyzes printers on the network for

performance information, col 4, ln 46-50), wherein said data allocation module specifies

the number of pages to be allocated to each printer, such that each specified set of

pages are printed with an identical printer (Shimada, figure 5, identical printers are

shown by element #100, wherein pages are specified by data allocation module in ln

54-65, for example), in response to an externally input predetermined first command

(Shimada, input is performed by input devices shown in figure 5 but not labeled, such as

a keyboard, or implicitly provided by a mouse, not shown), otherwise said data

allocation module specifies the number of pages to be allocated to each printer

according to the performance on the printing speed of each printer detected by said

printer speed performance detection module (Lobiondo, col 4, ln 54-68 and col 5, ln 1-

14, wherein multiple copies (col 4, ln 35-36) are divided and allocated into multiple

printers, with allocations performed with respect to the speed of printers, speed

detection is performed by the scheduler which analyzes printers on the network for

performance information, col 4, ln 46-50).

Regarding claim 7, which depends from claim 6, the combination of Lobiondo

and Shimada teaches a distributed printing control apparatus wherein said data

allocation module specifies the number of pages to be allocated to each printer, based

on the condition that each specified set of pages are printed with an identical printer

(Shimada, col 8, ln 24-36, for example, pages are allocated to identical printers based

on specification from data allocation module) and according to the performance on the

printing speed of each printer detected by said printer speed performance detection

module (Lobiondo, col 4, ln 54-68 and col 5, ln 1-14, wherein multiple copies (col 4, ln

35-36) are divided and allocated into multiple printers, with allocations performed with

respect to the speed of printers, speed detection is performed by the scheduler which

analyzes printers on the network for performance information, col 4, ln 46-50), in

response to both an externally input predetermined second command (Lobiondo, col 6,

ln 22-27, inputting a print job and sending to spooler acts as external input for

distributed printing based upon speed performance of printers) and the externally input

predetermined first command (Shimada, figure 12, multi-printer checkbox #78 must be

selected to achieve distributed printing by a plurality of printers).

Regarding claim 9, which depends from claim 5, the combination of Lobiondo

and Shimada teaches a distributed printing control apparatus further comprising a

distribution information setting module that causes an input window to be displayed on a

display device and sets various pieces of information regarding distribution of the print

data based on input data from an input device (Shimada, figure 12, input window is

displayed to the user to allow for setting pieces of information regarding distribution of

print data such as "prefer print speed" #774, "prefer print" order #773, number of copies

#771, and "print copy by copy" #772), wherein said data allocation module specifies the

pages allocated to the multiple printers, based on the various pieces of information set

by said distribution information setting module Shimada, figure 12, selection of multi-

printer checkbox #78 in fig 12 allows for distributed printing based upon pieces of

information set by information setting module. Also see col 6, ln 48-54 wherein pages

are allocated), and said distribution information setting module comprises a display

control module that generates an illustrated image, which includes an array of printing

media and corresponds to the information specified by said data allocation module

based on the various pieces of information and causes the illustrated image to be

displayed on said display device (Shimada, figure 12, illustrations of allocation of print

media is shown next to checkbox #772 corresponding to "print by copy," corresponding

to information specified by allocation module and distribution information setting

module).

Regarding claim 16, which depends on claim 15, claim 16 recites identical

features as claim 4 except claim 16 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 4 is equally applicable to claim 16.

Applicant's attention is further invited to col 3, In 37-50, wherein Lobiondo discloses the

Printshop Scheduler may be embodied in hardware or software, and data is stored in a

computer readable medium such as a buffer or RAM. See also Shimada, col 4, In 55-

65, wherein CPU controls operation of printing system with RAM, ROM, and

corresponding programs

Regarding claim 18, which depends on claim 17, claim 18 recites identical

features as claim 6 except claim 18 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 6 is equally applicable to claim 18.

Applicant's attention is further invited to col 3, In 37-50, wherein Lobiondo discloses the

Printshop Scheduler may be embodied in hardware or software, and data is stored in a

computer readable medium such as a buffer or RAM. See also Shimada, col 4, In 55-

65, wherein CPU controls operation of printing system with RAM, ROM, and corresponding programs.

Regarding claim 19, which depends on claim 18, claim 19 recites identical features as claim 7 except claim 19 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 7 is equally applicable to claim 19.

Regarding claim 21, which depends on claim 17, claim 21 recites identical features as claim 9 except claim 21 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 9 is equally applicable to claim 21

Claims 25, 26, 30, 34, 38, 39, 42, 43, 47, 51, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lobiondo (US 5,287,194), Shimada (US 6,654,136), and Livingston (US 6,452,607).

Regarding claim 25, Lobiondo teaches a distributed printing control apparatus that controls distributed printing and comprises:

A printer performance information collection module that collects performance information with regard to the predetermined condition from each of the multiple printers specified by said printer specification module (Lobiondo, col 4, ln 46-50, performance detection is performed by the scheduler which analyzes printers on the network for performance information). Lobiondo does not disclose expressly a distributed printing control apparatus comprising a condition setting module or a data input restriction module. Shimada, however, teaches a distributed printing control module comprising a condition setting module that causes a data input box for setting a predetermined

condition relating to a printing performance of each printer to be displayed on a display

device, receives input data into the data input box from an input device, and sets the

predetermined condition based on the input data (Shimada, figure 12, performance

relating to distributed printers is set in data input boxes #771, #772, #78, #774, and

#773. Input is performed by input devices shown in figure 5 but not labeled, such as a

keyboard, or implicitly provided by a mouse, not shown).

Lobiondo and Shimada are combinable because they are in a similar field of

endeavor of distributed printing to a plurality of printers. At the time of the invention, it

would have been obvious to a person of ordinary skill in the art to combine the

distributed printing control apparatus of Shimada comprising a condition setting module

with the distributed printing control apparatus of Lobiondo comprising a printer

performance information collection module. The suggestion for doing so would have

been to provide a distributed printing control apparatus comprising a scheduler which

included a menu-driven operation viewable through a suitable display means such as a

display on a user-interface (Lobiondo, col 6, ln 19-21), as well as to enable a plurality of

printers to print a document without disordering a page order (Shimada, col 1, ln 48-52),

while allowing the user to easily select preferences through the user interface provided

by Shimada in figure 12.

The combination of Lobiondo and Shimada teaches a distributed printing control

apparatus comprising a printer performance information collection module and a

condition setting module. The aforementioned combination does not disclose expressly

a distributed printing control apparatus further comprising a data input restriction

module. Livingston, however, teaches a printing control apparatus comprising a data input restriction module that restricts the input data in the data input box according to the performance information of each printer collected by said printer performance information collection module (Livingston, col 4, ln 1-9, wherein control options not available to a printer due to performance limitations are not selectable to the user by being dimmed, while still allowing the user to view potential options).

Lobiondo, Shimada, and Livingston are combinable because they are from the similar field of endeavor of printing systems with printing control apparatus. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the data input restriction module of Livingston with the distributed printing control apparatus of Lobiondo and Shimada comprising a printer performance information collection module and a condition setting module. The motivation for doing so would have been to identify and disable control options to the user, thereby providing a help feature to a user interface when the system has detected a noteworthy status of a control option (Livingston, col 2, ln 30-47). Additionally, the use of the graphical user interface of Shimada and Livingston is to simplify interaction between a user and a computer, providing an appeal option over textual entry of commands for functional control of the computer and/or peripherals associated with the computer (Livingston, col 1, ln 10-18). Therefore, it would have been obvious to combine Livingston with the combination of Lobiondo and Shimada to obtain the invention as specified in claim 25.

Regarding claim 26, which depends from claim 25, the combination of Lobiondo, Shimada, and Livingston teaches a distributed printing control apparatus wherein said

data input restriction module specifies a set of performance information, which includes

all the performance information of the respective printers collected by said printer

performance information collection module, and restricts the input data in the data input

box within a range of the specified set of performance information (Livingston, col 4, ln

1-9, wherein control options not available to a printer due to performance limitations are

not selectable to the user by being dimmed, while still allowing the user to view potential

options. When Livingston is applied to the user interface taught by Shimada and

Lobiondo, all performance information of the respective printers is included and may be

subject to restriction).

Regarding claim 30, which depends from claim 25, the combination of Lobiondo,

Shimada, and Livingston teaches a distributed printing control apparatus wherein said

condition setting module displays an option display box showing options possibly input

in the data input box, together with the data input box, and sets one option selected

among the options and specified from said input device as the predetermined condition

(Shimada, figure 12, performance relating to distributed printers is set in data input

boxes #771, #772, #78, #774, and #773. Input is performed by input devices shown in

figure 5 but not labeled, such as a keyboard, or implicitly provided by a mouse, not

shown. More options, shown in fig 12, are available including "background," "detail,"

"main," "sheet," "picture/stamp," and "utility" are shown, but not expanded upon), and

said data input restriction module prohibits at least part of the options included in the

option display box from being specified from said input device, so as to restrict the input

data in the data input box (Livingston, col 4, ln 1-9, wherein control options not available

to a printer due to performance limitations are not selectable to the user by being

dimmed, while still allowing the user to view potential options. Also see fig 2, dimmed

option "stapler bin" #100, for example, of restricted control options due to unavailability

in the printer).

Regarding claim 34, which depends from claim 25, the combination of Lobiondo,

Shimada, and Livingston teaches a distributed printing control apparatus wherein said

printer specification module comprises:

A priority order specification module that specifies an order of priority allocated to

the specified multiple printers, and said distributive output module carries out the

distributive output by taking into account the order of priority specified by said priority

order specification module (Lobiondo, col 4, ln 54-68 and col 5, ln 1-14, wherein multiple

copies (col 4, ln 35-36) are divided and allocated into multiple printers, with allocations

performed with respect to the speed of printers, and the printers having the highest

speed being given the highest priority with respect to the distributive output of the

printing job).

Regarding claim 38, claim 38 recites identical features as claim 25 except claim

38 is a method claim. Thus, arguments similar to that presented above for claim 25 are

equally applicable to claim 38.

Regarding claim 39, which depends from claim 38, claim 39 recites identical

features as claim 26 except claim 39 is a method claim. Thus, arguments similar to that

presented above for claim 26 are equally applicable to claim 39.

Regarding claim 42, claim 42 recites identical features as claim 25 except

claim 42 is a computer readable medium claim. Thus, arguments similar to that

presented above for claim 25 is equally applicable to claim 42. Applicant's attention is

further invited to col 4, ln 55-65, of Shimada, wherein CPU controls operation of printing

system with RAM, ROM, and corresponding programs. See also Lobiondo, col 3, ln 37-

50, wherein the Printshop Scheduler may be embodied in hardware or software, and

data is stored in a computer readable medium such as a buffer or RAM. Additionally,

see Livingston, col 3, ln 17-20, wherein printing control apparatus is implemented as

software stored in RAM in a computer.

Regarding claim 43, which depends from claim 42, claim 43 recites identical

features as claim 26 except claim 43 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 26 is equally applicable to claim 43.

Regarding claim 47, which depends from claim 42, claim 47 recites identical

features as claim 30 except claim 47 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 30 is equally applicable to claim 47.

Regarding claim 51, which depends from claim 42, claim 51 recites identical

features as claim 34 except claim 51 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 34 is equally applicable to claim 51.

Regarding claim 55, which depends from claim 52, claim 53 recites identical

features as claim 25 except claim 55 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 25 is equally applicable to claim 55.

Applicant's attention is further invited to col 4, ln 55-65, of Shimada, wherein CPU

controls operation of printing system with RAM, ROM, and corresponding programs.

See also Lobiondo, col 3, ln 37-50, wherein the Printshop Scheduler may be embodied

in hardware or software, and data is stored in a computer readable medium such as a

buffer or RAM. Additionally, see Livingston, col 3, ln 17-20, wherein printing control

apparatus is implemented as software stored in RAM in a computer.

        Claims 27-29, 32, 35, 36, 40, 41, 44-46, 49, 52, and 53 are rejected under 35

U.S.C. 103(a) as being unpatentable over Lobiondo (US 5,287,194), Shimada (US

6,654,136), and Livingston (US 6,452,607), and further in view of Snyder et al. (US

5,564,109), hereafter referred to as Lobiondo, Shimada, Livingston, and Snyder.

        Regarding claim 27, which depends from claim 25, the combination of Lobiondo,

Shimada, and Livingston teaches a distributed printing control apparatus comprising a

condition setting module, a printer performance information collection module, and a

data input restriction module, as explained above in the rejection of claim 25. The

aforementioned combination does not teach a distributed printing control apparatus

wherein the data input restriction module specifies a set of common performance

information, which is common to all the performance information of the respective

printers collected by said printer performance information collection module, and

restricts the input data in the data input box within a range of the specified set of

common performance information. Snyder, however, teaches a distributed printing

control apparatus wherein said data input restriction module specifies a set of common

performance information, which is common to all the performance information of the

respective printers collected by said printer performance information collection module,
and restricts the input data in the data input box within a range of the specified set of
common performance information (Snyder, col 1 ln 64-67 and col 5 ln 1-2, performance
information regarding a plurality of printers is received by the distributed printing control
apparatus. One feature of the invention, for example, specifies a common set of
performance information with respect to printers, col 2, ln 8-12. Applying the restriction
element of Livingston, the input data would be restricted within the range of common
performance information).

Lobiondo, Shimada, Livingston, and Snyder are combinable because they are
from a similar field of endeavor of printing systems and printing control apparatus. At
the time of the invention, it would have been obvious to a person of ordinary skill in the
art to combine the data input restriction module that specifies a set of common
performance information of Snyder with the combination of Lobiondo, Shimada, and
Livingston comprising a distributed control apparatus comprising a condition setting
module, a printer performance information collection module, and a data input restriction
module. The motivation for doing so would have been to allow the operator to select
the best suitable peripheral device for printing (Snyder, col 2, ln 1-2) by allowing
operators to examine a displayed directory of available document production apparatus
at the user interface (Snyder, col 3, ln 1-3). Therefore, it would have been obvious to
combine Snyder with the combination of Lobiondo, Shimada, and Livingston to obtain
the invention as specified in claim 27.

Regarding claim 28, which depends from claim 25, the combination of Lobiondo,

Shimada, Livingston, and Snyder teaches a distributed printing control apparatus

wherein said data input restriction module comprises:

A mode changeover module that selectively changes over a working mode

between a first mode and a second mode, the first mode specifying a set of

performance information, which includes all the performance information of the

respective printers collected by said printer performance information collection module

(Snyder, col 3, ln 13-15, first mode specifying all performance collected from a plurality

of printers), and restricting the input data in the data input box within a range of the

specified set of performance information (Livingston, col 4, ln 1-9, wherein control

options not available to a printer due to performance limitations are not selectable to the

user by being dimmed, while still allowing the user to view potential options. When

Livingston is applied to the user interface of Shimada and Lobiondo, all performance

information of the respective printers is included and may be subject to restriction), the

second mode specifying a set of common performance information, which is common to

all the performance information of the respective printers collected by said printer

performance information collection module (Snyder, col 3, ln 10-14, wherein the second

mode specifies a set of common performance information common to a plurality of

printers), and restricting the input data in the data input box within a range of the

specified set of common performance information (Livingston, col 4, ln 1-9, wherein

control options not available to a printer due to performance limitations are not

selectable to the user by being dimmed, while still allowing the user to view potential

options. When Livingston is applied to the user interface of Shimada and Lobiondo, all

performance information of the respective printers is included and may be subject to

restriction).

Regarding claim 29, which depends from claim 28, the combination of Lobiondo,

Shimada, Livingston, and Snyder teaches a distributed printing control apparatus

wherein said mode changeover module comprises: a module that displays a switch for

the mode changeover on said display device, receives input data for operating the

switch from said input device, and gives an instruction to change over the working mode

based on the input data (Snyder, col 3, ln 36-47, changeover module is a user interface

software that is menu, allowing the user to switch forwards and backwards between

multiple screens to display all performance information, or only a set of common

performance information).

Regarding claim 32, which depends from claim 25, the combination of Lobiondo,

Shimada, Livingston, and Snyder teaches a distributed printing control apparatus

wherein said printer specification module comprises a name display control module that

displays names assigned to the specified multiple printers on said display device

(Snyder, col 3, ln 41-45, in the user interface software, the user is presented with a

directory of all accessible network printer, including the names of each printer).

Regarding claim 35, which depends from claim 26, the combination of Lobiondo,

Shimada, Livingston, and Snyder teaches a distributed printing control apparatus further

comprising:

A performance decision module that determines whether or not each of the multiple printers specified by said printer specification module has a printing performance represented by the predetermined condition set by said condition setting module, wherein said distributive output module comprises an output resource exclusion module that excludes a printer, which has been determined by said performance decision module not to have the printing performance, from an output resource of the print data (Snyder, col 4, ln 19-27, server, i.e. performance decision module, polls available printers and creates a response device list comparing the features of each device with the parameters specified in the device query, i.e. the parameters required for a print job, and forms a list of available printers by excluding those printers from the list that do not meet the requirements).

Regarding claim 36, which depends from claim 35, the combination of Lobiondo, Shimada, Livingston, and Snyder teaches a distributed printing control apparatus wherein said printer specification module comprises a name display control module that displays names of the specified multiple printers on said display device (Snyder, col 3, ln 41-45, in the user interface software, the user is presented with a directory of all accessible network printer, including the names of each printer), and said name display control module comprises a module that prohibits distinctive display of the name of the printer, which is excluded by said output resource exclusion module (Applying the restriction element of Livingston, the display control module would be prohibited from distinctly displaying the excluded printer in the same manner that a feature was excluded from being selected in col 4, ln 1-9 of Livingston, wherein control options not

available to a printer due to performance limitations are not selectable to the user by being dimmed, i.e. prohibited from being distinctly displayed).

Regarding claim 40, which depends from claim 38, claim 40 recites identical features as claim 27 except claim 40 is a method claim. Thus, arguments similar to that presented above for claim 27 are equally applicable to claim 40.

Regarding claim 41, which depends from claim 28, claim 41 recites identical features as claim 28 except claim 41 is a method claim. Thus, arguments similar to that presented above for claim 28 are equally applicable to claim 41.

Regarding claim 44, which depends from claim 42, claim 44 recites identical features as claim 27 except claim 44 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 27 is equally applicable to claim 44.

Regarding claim 45, which depends from claim 42, claim 45 recites identical features as claim 28 except claim 45 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 28 is equally applicable to claim 45.

Regarding claim 46, which depends from claim 45, claim 46 recites identical features as claim 29 except claim 46 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 29 is equally applicable to claim 46.

Regarding claim 49, which depends from claim 42, claim 49 recites identical features as claim 32 except claim 49 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 32 is equally applicable to claim 49.

Regarding claim 52, which depends from claim 43, claim 52 recites identical

features as claim 35 except claim 52 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 35 is equally applicable to claim 52.

Regarding claim 53, which depends from claim 52, claim 53 recites identical

features as claim 36 except claim 53 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 36 is equally applicable to claim 53.

Claims 31 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Lobiondo (US 5,287,194), Shimada (US 6,654,136), and Livingston (US

6,452,607), and further in view of Kumada (US 6,563,944).

Regarding claim 31, which depends from claim 25, the combination of Lobiondo,

Shimada, and Livingston teaches a distributed printing control apparatus comprising a

condition setting module, a printer performance information collection module, and a

data input restriction module, as explained above in the rejection of claim 25. The

aforementioned combination does not teach a distributed printing control apparatus

further comprising a group mapping module wherein said printer specification module

specifies the multiple printers by a group unit. Kumada, however, teaches a distributed

printing control module further comprising a group mapping module that maps a plurality

of printers to each group, wherein said printer specification module specifies the

multiple printers by a unit of group mapped by said group mapping module (Kumada,

col 8, ln 12-38, printers are grouped together to provide ease in selecting a similar or

replacement printer).

Lobiondo, Shimada, Livingston, and Kumada are combinable because they are from a similar field of endeavor of printing systems with printer control apparatus. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the group mapping module of Kumada with the combination of Lobiondo, Shimada, and Livingston teaches a distributed printing control apparatus comprising a condition setting module, a printer performance information collection module, and a data input restriction module. The motivation for doing so would have been to provide an apparatus and method for grouping the output devices connected to a network, wherein the other output devices in a group to which the indicated output device belongs are handled as the output devices being the candidates for the substitution (Kumada, col 3, ln 36-54), to guarantee high precision color reproduction in substitute printing systems (Kumada, col 8, ln 29-30), and also in distributive printing systems. Therefore, it would have been obvious to combine Kumada with the combination of Lobiondo, Shimada, and Livingston to obtain the invention as specified in claim 31.

Regarding claim 48, which depends from claim 42, claim 48 recites identical features as claim 31 except claim 48 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 31 is equally applicable to claim 47. See also Kumada, col 4, ln 60-60, for disclosure of computer comprising of CPU, RAM, and ROM necessary for running distributed printer controller software.

Claims 33 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lobiondo (US 5,287,194), Shimada (US 6,654,136), Livingston (US 6,452,607),

and Snyder et al. (US 5,564,109), and further in view of Quinion (US 5,978,559),

hereafter referred to as Lobiondo, Shimada, Livingston, Snyder, and Quinion.

Regarding claim 33, which depends from claim 32, the combination of Lobiondo,

Shimada, Livingston, and Snyder teaches a distributed printing control apparatus

comprising a condition setting module, a printer performance information collection

module, and a data input restriction module, and a name display control module, as

explained above in the rejection of claim 32. The aforementioned combination does not

disclose expressly an input control module that displays switches that correspond to the

respective printer names displayed by said name display control module and are

operated to exclude the corresponding printers from the destinations of distribution, and

receives operation data of the switches from said input device, and said distributive

output module comprises an output resource exclusion module that excludes a printer,

which is determined that the corresponding switch has been operated based on the

operation data received by said input control module, from an output resource of the

print data. Quinion, however, teaches a distributed printing control apparatus

comprising an input control module that displays switches that correspond to the

respective printer names displayed by said name display control module (Quinion,

figure 7, user interface for distributed printing includes icons which correspond to

respective printer names) and are operated to exclude the corresponding printers from

the destinations of distribution (Quinion, figure 7, "Goliath DT135 #2," element 106-3, is

not available for printing and is excluded as a destination of distribution), and receives

operation data of the switches from said input device, and said distributive output

module comprises an output resource exclusion module that excludes a printer, which is determined that the corresponding switch has been operated based on the operation data received by said input control module, from an output resource of the print data (Quinion, col 10, In 18-40, in the event a printer is offline, it is excluded from the list of available printers by automatically rerouting jobs from the queue of said offline printer).

Lobiondo, Shimada, Livingston, Snyder, and Quinion are combinable because they are from a similar field of endeavor of printing systems including printing control apparatus. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the input control module of Quinion that displays switches corresponding to a plurality of printers, the switches operated to exclude corresponding printers from the destinations of distribution with the combination of Lobiondo, Shimada, Livingston, and Snyder comprising a distributed printing control apparatus comprising a condition setting module, a printer performance information collection module, and a data input restriction module, and a name display control module. The motivation for doing so would have been to provide a user interface which can display device icons on the panel, thereby allowing a user to readily determine whether any target device is available or offline, and/or unbalanced, while also providing an apparatus to examine the offline or unbalanced printers and queues (Quinion, col 10, In 13-20). Therefore, it would have been obvious to combine Quinion with the combination of Lobiondo, Shimada, Livingston, and Snyder to obtain the invention as specified in claim 33.

Regarding claim 50, which depends from claim 49, claim 50 recites identical

features as claim 33 except claim 50 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 33 is equally applicable to claim 50.

Claims 37 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Lobiondo (US 5,287,194), Shimada (US 6,654,136), and Livingston (US

6,452,607), and further in view of Yacoub (US 6,552,813).

Regarding claim 37, which depends from claim 25, the combination of Lobiondo,

Shimada, and Livingston teaches a distributed printing control apparatus comprising a

condition setting module, a printer performance information collection module, and a

data input restriction module, as explained above in the rejection of claim 25. The

aforementioned combination does not teach a distributed printing control apparatus

wherein said printer performance information collection module receives information

regarding performances of the multiple printers from printer drivers provided for

respective types of the multiple printers and collects the performance information with

regard to the predetermined condition from the received information. Yacoub, however,

teaches a distributed printing control apparatus wherein said printer performance

information collection module receives information regarding performances of the

multiple printers from printer drivers provided for respective types of the multiple printers

and collects the performance information with regard to the predetermined condition

from the received information (Yacoub, col 4, ln 30-36, wherein virtual printer collects

information of available printers meeting user's preferences into a database, wherein

the database of information is updated from the print drivers of the printer, col 5, ln 44-50).

Lobiondo, Shimada, Livingston, and Yacoub are combinable because they are from a similar field of endeavor of printing systems with printer control apparatus. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the distributed printing control apparatus comprising an information collection module that received information regarding the performance of a plurality of printers from the print drivers of Yacoub with the combination of Lobiondo, Shimada, and Livingston teaching a distributed printing control apparatus comprising a condition setting module, a printer performance information collection module, and a data input restriction module. The motivation for doing so would have been to relieve the user of the burdens of trying to find or select the most appropriate printer for the job (Yacoub, col 5, ln 1-2) by automatically polling the device drivers to provide the most updated information regarding the performance of the printers. Therefore, it would have been obvious to combine Yacoub with the combination of Lobiondo, Shimada, and Livingston to obtain the invention as specified in claim 37.

Regarding claim 54, which depends from claim 42, claim 54 recites identical features as claim 37 except claim 54 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 37 is equally applicable to claim 54. See Yacoub, col 5, ln 35-44, wherein distributed printer controller is implemented as a virtual printer application on a computer or server.

Claims 56, 58-60, 62, 63, 65, and 66 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Yacoub (US 6,552,813), Lobiondo (US 5,287,194), and Kuchta

(US 5,805,777).

Regarding claim 56, Yacoub teaches a distributed printing control apparatus

comprising:

A first setting module that specifies multiple printers as destinations of distribution

(Yacoub, col 5, ln 50-55, setting module comprises database of printers and respective

capabilities, and sets printers as destinations based upon capabilities);

A second setting module that sets paper information with regard to paper used

for printing (Yacoub, col 4, ln 24-27, in addition to setting speed, quality, and color

preferences, a user may specify many other preferences, for example paper type, paper

size, dithering, and so on); and

A distribution control module that processes externally input print data based on

the specification by said first setting module and the setting by said second setting

module and outputs plural divisions of the print data, which satisfy the paper information

(Yacoub, col 4, ln 24-27, and ln 42-52, outputting print jobs to printers based on speed,

quality, and color is merely exemplary and not intended to restrict the possibility of

determining printers as destinations based upon paper type and size). Yacoub also

teaches supplying printer information to the server and print data to the printers via a

print driver specific to each printer (Yacoub, col 5, ln 44-50, data is received and

transmitted from and to printers via the print drivers). Yacoub does not expressly

disclose the outputting of print data to a plurality of printers simultaneously. Lobiondo,

however, teaches a distributed printing control apparatus wherein the processing

includes outputting plural divisions of the print data to the multiple printers specified as

the destinations of distribution, said distributed printing control apparatus supplying the

plural divisions of the print data output from said distribution control module to the

multiple printers (Lobiondo, col 4, ln 54-61, jobs are allocated to a distributed manner to

a plurality of available printers satisfying job parameters according to a requirement of

completion time).

Yacoub and Lobiondo are combinable because they are from a similar field of

endeavor of distributed printing to a plurality of printers with distributed printing control

apparatus. At the time of the invention, it would have been obvious to a person of

ordinary skill in the art to combine the distributed printing control apparatus of Lobiondo

for parallel printing to a plurality of computers with the distributed printing control

apparatus of Yacoub with a first and second setting module, and capabilities to output

print data to printers while satisfying the requirement for a specific paper used for

printing. The motivation for doing so would have been to relieve the user of the burdens

of trying to find or select the most appropriate printer for the job (Yacoub, col 5, ln 1-2),

as well as to provide a Printshop scheduler routine which can schedule and distribute a

large job among a plurality of local and remote printers attached to a network based on

the availability and capability of the printers and the criteria associated with the print job

(Lobiondo, col 2, ln 20-31).

The combination of Yacoub and Lobiondo teaches a distributed printing control

apparatus comprising a first and second setting module for setting a paper requirement

for a print job, and outputting the print job to a plurality of printers in a distributive

manner based on the capabilities and availability of the printer. The combination of

Yacoub and Lobiondo does not expressly disclose a distributed printing apparatus

further comprising an information input module that receives information with regard to

an unprintable area included in a paper area in each of the multiple printers specified by

said first setting module, and a printable area computation module that computes a

printable area in the paper area, which is printable with any of the multiple printers, from

the information of the respective printers received by said information input module,

wherein said distribution control module comprises an area fitting module that causes

the plural divisions of the print data to be fit to the printable area computed by said

printable area computation module. Kuchta, however, discloses a distributed printing

control apparatus comprising:

An information input module that receives information with regard to an

unprintable area included in a paper area in each of the multiple printers specified by

said first setting module, and a printable area computation module that computes a

printable area in the paper area, which is printable with any of the multiple printers, from

the information of the respective printers received by said information input module

(Kuchta, col 33, ln 65-67 and col 34, ln 1-7, wherein information is received regarding

the papers supported by each printer, the current media, and the smallest printable

area. While configuring a plurality of printers the smallest printable area is determined

to be common for all printers and is used for printing), wherein said distribution control

module comprises:

An area fitting module that causes the plural divisions of the print data to be fit to the printable area computed by said printable area computation module (Kuchta, col 12, ln 35-62, scaling options, and specifically the "scale to fit" option, are available to fit print data in smallest common printable area among the plurality of printers).

Yacoub, Lobiondo, and Kuchta are combinable because they are from a similar field of endeavor of printing systems with a plurality of printers. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the area computation module and area fitting module of Kuchta with the combination of Yacoub and Lobiondo comprising a distributed printing control apparatus comprising a first and second setting module for setting a paper requirement for a print job, and outputting the print job to a plurality of printers in a distributive manner based on the capabilities and availability of the printer. The motivation for doing so would have been to improve the interface for calibrating printers and print servers (Kuchta, col 1, ln 65-67, and col 2, ln 1-2), as well as to allow applications like print servers to make use of several printers of the same kind (Kuchta, col 34, ln 23-29). Therefore, it would have been obvious to combine Kuchta with the combination of Yacoub and Lobiondo to obtain the invention as specified in claim 56.

Regarding claim 58, which depends from claim 56, the combination of Yacoub, Lobiondo, and Kuchta teaches a distributed printing control apparatus wherein said information input module receives the information from the printer drivers provided for the respective printers (Yacoub, col 5, ln 44-50, data is received from the printers via the print drivers).

Regarding claim 59, which depends from claim 56, the combination of Yacoub,

Lobiondo, and Kuchta teaches a distributed printing control apparatus wherein the

multiple printers are connected via a computer network (Lobiondo, figure 1, printers #10

are connected via a computer network with communications links #20, modem #25, and

computer workstations #30. See also col 3, ln 16-32).

Regarding claim 60, claim 60 recites identical features as claim 56 except claim

60 is a method claim. Thus, arguments similar to that presented above for claim 56 are

equally applicable to claim 60.

Regarding claim 62, which depends from claim 60, claim 62 recites identical

features as claim 58 except claim 62 is a method claim. Thus, arguments similar to that

presented above for claim 58 are equally applicable to claim 62.

Claim 63 recites identical features as claim 56 except claim 63 is a computer

readable medium claim. Thus, arguments similar to that presented above for claim 56

is equally applicable to claim 63. Applicant's attention is further invited to col 5, ln 35-44

of Yacoub, wherein distributed printer controller is implemented as a virtual printer

application on a computer or server. See also Lobiondo, col 3, ln 37-50, wherein the

Printshop Scheduler may be embodied in hardware or software, and data is stored in a

computer readable medium such as a buffer or RAM.

Regarding claim 65, which depends from claim 63, claim 65 recites identical

features as claim 58 except claim 65 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 58 is equally applicable to claim 65.

Claim 66 recites identical features as claim 56 except claim 66 is a computer readable medium claim. Thus, arguments similar to that presented above for claim 56 is equally applicable to claim 66. Applicant's attention is further invited to col 5, ln 35-44 of Yacoub, wherein distributed printer controller is implemented as a virtual printer application on a computer or server. See also Lobiondo, col 3, ln 37-50, wherein the Printshop Scheduler may be embodied in hardware or software, and data is stored in a computer readable medium such as a buffer or RAM.

Claims 57, 61, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yacoub (US 6,552,813), Lobiondo (US 5,287,194), and Kuchta (US 5,805,777), and further in view of Yamaguchi et al. (US 5,036,476), hereafter referred to as Yacoub, Lobiondo, Kuchta, and Yamaguchi.

Regarding claim 57, which depends from claim 56, the combination of Yacoub, Lobiondo, and Kuchta teaches a distributed printing control apparatus comprising a first and second setting module for setting a paper requirement for a print job, outputting the print job to a plurality of printers in a distributive manner based on the capabilities and availability of the printer, and additionally an information input module, a printable area computation module, and an area fitting module as explained above in the rejection of claim 56. The aforementioned combination does not disclose expressly a distributed printing control apparatus wherein said area fitting module comprises a margin correction module that corrects margins on each sheet of paper defined by the print data, based on the printable area computed by said printable area computation module.

Yamaguchi, however, teaches a printing control apparatus wherein the area fitting

module comprises a margin correction module that corrects margins on each sheet of

paper defined by the print data, based on the printable area computed by said printable

area computation module (Yamaguchi, col 12, ln 62-65, the sizes of the margins are

determined from the processor which receives printable area information. See also

figure 12 for margin correction to fit within printable area of paper).

Yacoub, Lobiondo, Kuchta, and Yamaguchi are combinable because they are

from a similar field of endeavor of printing systems. At the time of the invention, it would

have been obvious to a person of ordinary skill in the art to combine the margin

correction module of Yamaguchi with the distributed printing control apparatus of

Yacoub, Lobiondo, and Kuchta comprising a first and second setting module for setting

a paper requirement for a print job, outputting the print job to a plurality of printers in a

distributive manner based on the capabilities and availability of the printer, and

additionally an information input module, and a printable area computation module. The

motivation for doing so would have been to provide a control means for controlling the

image recording means in accordance with the selected process program for enabling

the recording means to reproduce on the record medium an image corresponding to the

image data supplied from the data processing device (Yamaguchi, col 2, ln 57-62),

thereby providing consistent output from a printing device. Therefore, it would have

been obvious to combine Yamaguchi with the combination of Yacoub, Lobiondo, and

Kuchta to obtain the invention as specified in claim 57.

Regarding claim 61, which depends from claim 60, claim 61 recites identical

features as claim 57 except claim 61 is a method claim. Thus, arguments similar to that

presented above for claim 57 are equally applicable to claim 61.
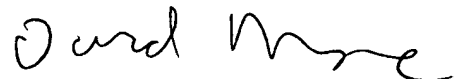
Regarding claim 64, which depends from claim 63, claim 64 recites identical

features as claim 57 except claim 64 is a computer readable medium claim. Thus,

arguments similar to that presented above for claim 57 is equally applicable to claim 64.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dillon J. Murphy whose telephone number is (571) 272-

5945. The examiner can normally be reached on M-F, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Moore can be reached on (571) 272-7437. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

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